USC

UNIVERSITY OF SOUTHERN CALIFORNIA

Keck School of Medicine

Department of Preventive Medicine
USC Cancer Surveillance Program

Community Cancer Assessment on the Sunshine Canyon Landfill Area

Final Report: October 18, 2003

Report prepared by Wendy Cozen, D.O., M.P.H.
Assistant Professor of Preventive Medicine
USC Cancer Surveillance Program
Los Angeles, California
(323) 442-2300
wcozen@usc.edu

The University of Southern California Cancer Surveillance Program (USC-CSP) is the population-based cancer registry for Los Angeles County that was begun in 1972. By law, all cancers diagnosed in California since January 1, 1988 are reported to one of the regional registries that form the California Cancer Registry (CCR), the legally mandated cancer reporting system of California. The USC-CSP serves as Region 9 of the CCR, and is also one of the registries participating in the National Cancer Institute's Surveillance, Epidemiology and End-Results Program. Cancer surveillance in the USC-CSP is funded by the California Department of Health Services, the Centers for Disease Control and Prevention, and the National Cancer Institute. Data is collected on all new cancer patients diagnosed in Los Angeles County since 1972 and includes information on age, race/ethnicity, address at diagnosis, gender and specific type of cancer. All invasive cancers, excluding non-melanoma skin cancers, are reported, along with in situ breast and bladder cancer, and benign brain tumors. Completeness of the reporting to the registry is estimated at over 95%.

This report is in response to a request by Paul Simon, M.D. of the Los Angeles County Department of Health Services and James Stratton, M.D. of the California Environmental Protection Agency, for an assessment of the cancer risk in the neighborhoods near the Sunshine Canyon Landfill.
We evaluated the risk of specific cancers among the residents of the census tract containing the landfill (1066.03) and of the census tracts surrounding the landfill (1065.00, 1066.01, 1066.02, 1066.41, 1066.42, 1066.43), by comparing the observed number of cases residing in each area to that expected based on Los Angeles County-

wide incidence rates, adjusted for age and standardized to the population age distribution of the 2000 U.S. Census. If the expected or observed number of cancers in the census tract for any given comparison is 10 or less, the analysis was suppressed, since results would be difficult to interpret. In the attached tables we report the observed number, the 95% confidence interval around the expected number, and the relative risk (risk in one of the two sets of census tracts listed above), compared to elsewhere in Los Angeles, if the relative risk was greater than 1.5 and the p value was less than 0.05. We use these cut-off points because they are epidemiological standards when interpreting possible causal associations. We assessed the neighborhood risks of lung, liver, bladder, and colon cancer because these would be most likely to result from a carcinogenic exposure in air or water. We also evaluated the risks of all types of cancer in all ages and in children up to 14 years old, and of breast cancer (invasive only, excluding in situ), in response to specific requests.

Results:
Because the population of the census tract containing the Sunshine Canyon Landfill is small, we could only evaluate the risk of all cancers considered together and of breast cancer among women and there were no observed excesses of these types of cancers (Tables 1 and 3). Fewer than 10 of each other type of cancer occurred among these residents over the 27-year period. Similarly, in the neighborhoods around the Sunshine Canyon Landfill, there were no excesses observed in any type of cancer that we evaluated (Tables 2 and 4). All were within the expected range except for two- the observed number of male lung cancers in the surrounding tracts and the observed number of all male cancers combined in the census tract containing the Sunshine Canyon Landfill, were actually less than expected.
Additional comparisons within socioeconomic class strata, (i.e. comparing the incidence rates to those of similar socioeconomic class in Los Angeles County as a whole), showed no excess occurrence of cancers in these census tracts.

These results provide evidence that proximity to the Sunshine Canyon Landfill has not resulted in a measurable excess of lung, liver, breast, colon, bladder, childhood or all types of cancers in all ages combined. This does not mean that an individual case of cancer could not have resulted from the landfill, only that no excess could be detected. This type of neighborhood analysis has some limitations. It is possible that residents moved out of this Granada Hills area and were diagnosed with cancer while living in other areas, and that persons now residing in these census tracts were diagnosed with cancer after living here for a short time. This type of bias is most important for people diagnosed with cancer as young adults, but it does not seem to be a serious problem for evaluation of cancers in children under 18 or adults over 40 years of age (i.e. less than 10% of people in these age groups move every 5-10 years, according to the U.S. Census Bureau), and the majority of cancers occur among adults over 40 years of age.

It should be noted that there have been several studies of cancer risk around other dumpsites in Los Angeles County and no cancer excess has been identified near any of these. This is partly because over a long time period, cancers become relatively common among residents in any neighborhood and about 1/3 of us will eventually develop at least

one cancer. In addition, since genetics and lifestyle factors such as smoking, diet and hormone use play such a strong role in causing cancers, it may be difficult to detect other weaker associations. Thus, studies of health impact should also focus on measuring potentially toxic or carcinogenic exposures, and evidence of such exposures should be used in making public policy, regardless of whether an excess of cancers around the source of concern can be identified.

Analysis of risk of cancers in the Sunshine Canyon landfill area

Table 1. Expected and observed numbers of cancers in males, residing in census tract 1066.03 from 1972-1999, USC Cancer Surveillance Program, adjusted for age.

Type of Cancers	No. Expected[1]/100,000	No. Observed	No. Excess Cases	Relative Risk[2]
All cancers	61-97	46	0	NS[2]
Lung	-	<10	-	-
Colon	-	<10	-	-
Bladder	-	<10	-	-
Liver	-	< 10	-	-
Childhood	-	< 10	-	-

[1] 95% confidence intervals around the expected number of cancers, based on the gender/age specific incidence of that cancer in Los Angeles County applied to the specific population.
[2] NS= Not significant (relative risk less than 1.5 or $p > 0.05$).

Table 2. Expected and observed numbers of cancers in males, residing in census tracts 1065.00, 1066.01.1066.02, 1066.41, 1066.42, 1066.43 from 1972-1999, USC Cancer Surveillance Program, adjusted for age.

Type of Cancers	No. Expected[1]/100,000	No. Observed	No. Excess Cases	Relative Risk[2]
All cancers	765-878	782	0	NS[2]
Lung	162-217	158	0	NS[2]
Colon	56-91	82	0	NS[2]
Bladder	27-52	36	0	NS[2]
Liver	5-20	13	0	NS[2]
Childhood	5-20	12	0	NS[2]

[1] 95% confidence intervals around the expected number of cancers, based on the gender/age specific incidence of that cancer in Los Angeles County applied to the specific population.
[2] NS= Not significant (relative risk less than 1.5 or $p > 0.05$).

Table 3. Expected and observed numbers of cancers in females, residing in census tract 1066.03 from 1972-1999, USC Cancer Surveillance Program, adjusted for age.

Type of Cancers	No. Expected[1]/100,000	No. Observed	No. Excess Cases	Relative Risk[2]
All cancers	56-91	65	0	NS[2]
Breast	11-29	18	0	NS[2]
Lung	-	<10	-	-
Colon	-	<10	-	-
Bladder	-	<10	-	-
Liver	-	< 10	-	-
Childhood	-	< 10	-	-

[1] 95% confidence intervals around the expected number of cancers, based on the gender/age specific incidence of that cancer in Los Angeles County applied to the specific population.
[2] NS= Not significant (relative risk less than 1.5 or $p > 0.05$).

Table 4. Expected and observed numbers of cancers in females, residing in census tracts 1065.00, 1066.01.1066.02, 1066.41, 1066.42, 1066.43 from 1972-1999, USC Cancer Surveillance Program, adjusted for age.

Type of Cancers	No. Expected[1]/100,000	No. Observed	No. Excess Cases	Relative Risk[2]
All cancers	697-806	776	0	NS[2]
Breast	167-223	220	0	NS[2]
Lung	81-122	96	0	NS[2]
Colon	54-88	68	0	NS[2]
Bladder	8-25	21	0	NS[2]
Liver	-	<10	-	-
Childhood	4-17	11	0	NS[2]

[1] 95% confidence intervals around the expected number of cancers, based on the gender/age specific incidence of that cancer in Los Angeles County applied to the specific population.
[2] NS= Not significant (relative risk less than 1.5 or $p > 0.05$).

Cc: Ronald K. Ross, M.D.; Dennis Deapen, Dr.PH.; Leslie Bernstein, Ph.D.; William Wright, Ph.D.; James Stratton, M.D.; Cyrus Rangan, M.D.; Janet Scully, M.P.H.